\*Slide intro

\*clic - Marine protected areas are specific ecosystems, involving both land and sea, and their ecological monitoring is a reflection of this specificity. We will use the example of Aldabra island in the Indian Ocean.

\*clic - Aldabra is an atoll in the Seychelles, located North of Madagascar in the middle of the Indian Ocean. It covers around 350 square kilometres but it is mainly comprised of a lagoon of which two thirds are emerged during the low tide.

\*clic - The island is managed by the Seychelles Island Foundation and does not have any inhabitants except for some researchers in the research station.

\*clic - Aldabra has incredible biological diversity: over 100,000 giant tortoises stay there.

\* clic - It is one of the biggest egg-laying sites for Indian Ocean turtles.

\*clic - It is also home to many seabird colonies and endemic species such as the aldabra Rail but also to the region’s last population of Manatee.

\*clic - The coral reef attracts exceptional underwater fauna. All these elements have led the island to becoming a UNESCO World Heritage site in 1982.

\*clic - So, ecological monitoring focuses on the atoll's different values of course, and there are many of them. It requires expert knowledge in different fields.

\*clic - Monitoring tortoises focuses on different aspects of the population: the number of individuals is determined by travelling over 12 permanent transects at regular intervals. The population is today considered stable.

\*clic - The ecology of these tortoises is assessed by specifically monitoring hundreds of identified individuals by marking their shells, which also allows determining their lifespan.

\*clic - Their movements are monitored thanks to GPS microchips placed on some tortoises and their impact on the environment is assessed by the protection of certain plots where you can measure the growth of vegetation in absence of tortoises.

\*clic - Turtles are subject to a similar approach. Egg-layings are recorded at night on clearly defined beach areas, which allows for evaluating their evolution over time; over 500% in the past 40 years. Some turtles are also collared or monitored by satellite microchips, which gives information about their overall dispersion in the Indian Ocean when they move away from the atoll, and about their survival rate.

\*clic - Seabird colonies, their nests, the number of chicks... are surveyed each year which gives us the number of seabirds, the condition of the population, the fluctuations linked to food availability etc.

\*clic - Aldabra has become the second largest colony on earth for frigatebirds, and this statement can be made thanks to precise knowledge obtained by monitoring the colonies.

\*clic - Seabirds are also monitored when moving, and for example microchips allow for monitoring the red-tailed tropicbirds that reproduce in Aldabra, and will wander off several thousands of km away before coming back to their original site.

\*clic - Some endemic species like the Aldabra Rail can be subject to targeted monitoring through regular surveys and collaring to assess movements or survival rates.

\*clic - Eliminating cats previously introduced onto the island has allowed to restore the rail population and monitoring showed the progression rate in numbers and distribution.

\*clic - Monitoring invasive species is an essential part of the atoll's management. This has allowed taking the suitable measures to get rid of cats and goats introduced almost a century ago, and more recently to deal with the rats brought in by visiting navigators.

\*clic - Monitoring invaders is today above all preventive and consists in detecting new species that can present a local risk, and in this case the species will immediately be eliminated. This requires a permanent watch, ensured by surveillance staff during patrols conducted for this purpose in a systematic way.

\*clic - For example, Malagasy sparrows arrived from the neighbouring island of Assomption in 2012 during a storm. They were detected, then eradicated because they were presenting a threat to the survival or purity of the endemic Aldabra sparrow.

\*clic - This ecological watch, carefully organised and conducted, has other virtues. It has namely allowed to rediscover a snail species that was thought to be extinct since 2007. Therefore, carefully monitoring an environment can give information on the ecosystem far beyond the goals initially set, when for example it allows discovering an unknown species.

\*clic - The maritime environment is of course also subject to monitoring. The entire coral reef of the island has been mapped to enable detailed monitoring.

\*clic - Monitoring the underwater fauna is done during regular diving sessions, but also via immersed cameras that allow for the distant surveillance of 12 control sites.

\*clic - Surveying fish species, and their abundance, is done to detect evolving tendencies of the ecosystem. All this gives information on the condition of the reef, and allows for further monitoring of evolutions linked to the increase of the ocean temperature. The large sea mammals are also spotted from the coast, and the frequency of their visits is monitored.

\*clic - Ecological monitoring of Aldabra combines a classic monitoring approach that is regular, organised... to research that will help to answer the questions raised by monitoring.

\*clic - This leads to the exceptional management of the atoll, and confirms the utility of adaptive management based on good knowledge of the environment. This knowledge is possible thanks to the structured ecological monitoring plan.

\*clic - A big part of monitoring is purely forward-looking and aims at keeping any form of invasive species or other problems from appearing. In this respect, Aldabra is absolutely remarkable.